ALGEBRA II

Pearson Appeal of Prentice Hall Geometry and Algebra 2 Common Core Editions ©2012

Algebra 2 Appeal Table of Contents

A Point by point examination of the Common Core State Standards that received ratings of "1" or "2" along with documentation of where each standard is covered in Prentice Hall Algebra 2 Common Core Edition ©2012

Full Correlation of the Common Core State Standards to Prentice Hall Algebra 2 Common Core Edition ©2012 – previously submitted in the review binder

Complete Table of Contents for the Prentice Hall Algebra 2 Common Core Edition ©2012 indicating changes from the ©2011 Edition – previously submitted in the review binder

Indiana Appeal for Prentice Hall Algebra 2 Common Core Edition ©2012

Standards that Received a "2" Rating

Pearson Correlation Documentation			Algebra 2 ©2012 Table of Contents Documentation			Notes
Standard	Definition	Lesson ©2012	Lesson ©2012	Standards Covered	Notes	
N-CN.8	(+) Extend polynomial identities to the complex numbers. For example, rewrite x2 + 4 as (x + 2i)(x − 2i).	Lesson 4-8	4-8 Complex Numbers	N-CN.1, N-CN.2, NCN.7, N-CN.8	Exercises will be added/revised to address N-CN.8. Students will factor the sum of squares.	This is a (+) standard and not required
A-APR.3	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	Lessons 4-5, 5, 5-6	4-5 Quadratic Equations	A.CED.1, APR.3		
			5-5 Theorems About Roots of Polynomial Equations	A.APR.3		
			5-6 The Fundamental Theorem of Algebra	N.CN.9, A.APR.3		
A-APR.6	Rewrite simple rational expressions in different forms; write a(x)/b(x) in the form q(x) + r(x)/b(x), where a(x), b(x), q(x), and r(x) are polynomials with the degree of r(x) less than the degree of b(x), using inspection, long division, or, for the more complicated examples, a computer algebra system.	Lesson 5-4	5-4 Dividing Polynomials	A.APR.1, A.APR.2, A.APR.6	Exercises will be added/revised to address A.APR.1. Students will explain that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication.	

F-IF.7.b	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Lessons 2-7, 6-8, Concept Byte (following Lesson 2-4), , Concept Byte (following Lesson 8-2)	2-7 Absolute Value Functions and Graphs	F.IF.7.b, F.BF.3	Exercises will be revised to address F.BF.3. Students will compare k f(x) and f(kx)
			6-8 Graphing Radical Functions	F.IF.7.b, F.IF.8	
			Concept Byte: Piecewise Functions	F.IF.7.b	
			Concept Byte: Graphing Rational Functions	F.IF.7.b	
F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	Lessons 2-4, 4-2, 5-9, 6-8, 7-2, 7-3, 8-2			
S-IC.2	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads	Lesson 11-9, Concept Byte (following 11-10)	11-9 Binomial Distributions (renumbered from 11-8)	S.IC.2	
			Concept Byte: Approximating a Binomial Distribution	Extends S.IC.2	
S-IC.6	Evaluate reports based on data.	Lessons 11-6, 11-7, 11-8	11-6 Analyzing Data (renumbered from 11-5)	S.IC.6	

			Notes
11-7 Standard Deviation (renumbered from 11-6)	S.ID.4, S.IC.6	This lesson will be revised to address S.ID.4. Students will also recognize that there are data sets for which using standard deviation is not appropriate.	
11-8 Samples and Surveys (renumbered from 11-7)	S.IC.1, S.IC.3, S.IC.4, S.IC.6	This lesson will be revised to more fully address S.IC.1 Students will use statistics based on a random ample from a population to make inferences about population parameters.	

Standards that Received a "1" Rating

Pearson Correlation Documentation		Algebra 2 ©2012 Table of Contents Documentation			Notes
A-APR.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	Lessons 5-2, 5-4	5-2 Polynomials, Linear Factors, and Zeros	A.SSE.1.a, A.SSE.1.b, A.APR.1, F.IF.7.c	Exercises will be added/revised to address A.SSE.1.a, A.SSE.1.b, F.IF.7.c and A.APR.1. Students will interpret parts of an expression and complicated expressions, and will graph polynomial functions, identifying zeros when itable factorizations are available, and showing end behavior. They will also determine whether multiplication of polynomials is closed.	

			5-4 Dividing Polynomials	A.APR.1, A.APR.2, A.APR.6	Exercises will be added/revised to address A.APR.1. Students will explain that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication.
A-APR.4	Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x2 + y2) 2 = (x2 – y2) 2 + (2xy) 2$ can be used to generate Pythagorean triples	Concept Byte (before 5-5)	Concept Byte: Polynomial Identities	A.APR.4	This new feature replaces Solving Polynomial Inequalities and addresses A.APR.4. Students will prove polynomial identities and use them to describe numerical relationships.
F-IF.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	Lessons 4-3, 5 8	4-3 Modeling With Quadratic Functions	F.IF.5, F.IF.9	Exercises will be added/revised to address F.IF.9. Students will compare properties of two functions each represented in a different way.
			5-8 Polynomial Models in the Real World	F.IF.5	

Standard	Objective	Lesson	Lesson Title	Standard	Explanation
F-IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	Concept Byte (following Lesson 4-3)	Concept Byte: Identifying Quadratic Data	F.IF.6	This feature will be revised to address F.IF.6. Students will find the rate of change for a quadratic over a specified interval.
S-IC.3	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	Lesson 11-8	11-8 Samples and Surveys (renumbered from 11-7)	S.IC.1, S.IC.3, S.IC.4, S.IC.6	This lesson will be revised to more fully address S.IC.1. Students will use statistics based on a random ample from a population to make inferences about population parameters.
S-IC.5	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	Concept Byte (following 11-10)	Concept Byte: Randomized Experiments	S.IC.2, S.IC.5	This new feature addresses S.IC.5. Students will use data from a randomized experiment to compare two treatments.
S-MD.6	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	Lesson 11-5	11-5 Probability Models	S.MD.6, S.MD.7	This new lesson addresses S.MD.6, and S.MD.7. Students will use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator) and will analyze decisions and strategies using probability concepts.

S-MD.7	Lesson 11-5	11-5 Probability Models	S.MD.6, S.MD.7	
Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.				This new lesson addresses S.MD.6, and S.MD.7. Students will use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator) and will analyze decisions and strategies using probability concepts.

Common Core State Standards for Mathematics
High School

Following is a correlation of Pearson's *Prentice Hall Algebra II Common Core* ©2012 to Achieve's Algebra 2 Pathway for the Common Core State Standards for High School Mathematics.

Standards		Where to Find
Number and Quantity		
The Complex Number System		N-CN
Perform arithmetic operations with complex numbers		
N-CN.1	Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	4-8
N-CN.2	Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	4-8
N-CN.7	Solve quadratic equations with real coefficients that have complex solutions.	4-8
N-CN.8	(+) Extend polynomial identities to the complex numbers. *For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.*	4-8
N-CN.9	(+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	5-6
Algebra		
Seeing Structure in Expressions		
Interpret the structure of expressions.		
A-SSE.1.a	Interpret parts of an expression, such as terms, factors, and coefficients.	4-4, 5-2, 7-3, 8-4
A-SSE.1.b	Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1 + r)^n$ as the product of P and a factor not depending on P.	1-3, 1-6, 4-4, 5-2, 7-3, 8-4
A-SSE.2	Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.*	4-4, 5-3, 6-1, 6-2, 6-3, 8-4

Standards	Where to Find
Write expressions in equivalent forms to solve problems	
A-SSE.4 Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.*	9-5, Concept Byte (before 9-5)
Arithmetic with Polynomials and Rational Expressions	A-APR
Perform arithmetic operations on polynomials	
A-APR.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	5-2, 5-4
Understand the relationship between zeros and factors of polynomial	
A-APR.2 Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	5-4
A-APR.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	4-5, 5-5, 5-6
Use polynomial identities to solve problems	
A-APR.4 Prove polynomial identities and use them to describe numerical relationships. *For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.*	Concept Byte (before 5-5)
A-APR.5 (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.	5-7, Concept Byte (before 5-7)
Rewrite rational expressions	
A-APR.6 Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	5-4
A-APR.7 (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add,	8-5

indicates modeling standards.
(+) indicates additional mathematics that students should learn in order to take
advanced courses such as calculus, advanced statistics, or discrete mathematics.

Standards	Where to Find
subtract, multiply, and divide rational expressions.	

Creating Equations	A-CED

Create equations that describe numbers or relationships

A-CED.1	Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*	1-4, 1-5, 1-6, 4-1, 4-5, 8-6, Concept Byte (before 4-9), Concept Byte on Rational Inequalities (before Ch. 8 Pull It All Together)
A-CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	2-2, 2-3, 2-4, 2-5, 2-8, 4-2, 7-2, 8-1, 8-2, 8-3
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*	Concept Byte (after 7-6)
A-CED.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.*	1-4

Reasoning with Equations and Inequalities	A-REI

Understand solving equations as a process of reasoning and explain the reasoning

A-REI.2	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	6-5, 8-6

Represent and solve equations and inequalities graphically

A-REI.11	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	3-1, 4-2, 5-3, 7-5, 8-6

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Standards	Where to Find
Functions	
Interpreting Functions	F-IF
Interpret functions that arise in applications in terms of the context	
F-IF.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*	4-1, 4-2, 5-1, 13-1, Concept Byte (following 7-3)
F-IF.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*	4-3, 5-8
F-IF.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	Concept Byte (following 4-3)
Analyze functions using different representations	
F-IF.7.b	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	2-7, 6-8, Concept Byte (following 2-4), , Concept Byte (following 8-2)
F-IF.7.c	Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	5-1, 5-2, 5-9
F-IF.7.e	Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	7-2, 7-3, 13-4, 13-5, 13-6, 13-7, 13-8, Concept Byte, (following 7-5)
F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	2-4, 4-2, 5-9, 6-8, 7-2, 7-3, 8-2
F-IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*	2-4, 4-3, 5-9, 7-3

indicates modeling standards.
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advanced courses such as calculus, advanced statistics, or discrete mathematics.

Standards	Where to Find

Building Functions   F-BF

Build a function that models a relationship between two quantities

F-BF.1.b	Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*	6-6, 7-2, 8-3

Build new functions from existing functions

F-BF.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\ f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*	2-7, 4-1, 5-1, 5-9, 8-2, 8-3
F-BF.4.a	Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. *For example, $f(x) =2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.*	6-7, 7-3, Concept Byte (following 6-7)

Linear and Exponential Models   F-LE

Construct and compare linear and exponential models and solve problems.

F-LE.4	For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.	7-5, 7-6

Trigonometric Functions   F-TF

Extend the domain of trigonometric functions using the unit circle

F-TF.1	Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	13-3
F-TF.2	Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	13-2, 13-4, 13-5, 13-6

Model periodic phenomena with trigonometric functions

F-TF.5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	13-4, 13-5, 13-6, 13-7

Standards		Where to Find
Prove and apply trigonometric identities		
F-TF.8	Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to calculate trigonometric ratios.	14-1
Statistics and Probability All standards in this section have a close relation to modeling		
Interpreting Categorical and Quantitative Data		
Summarize, represent, and interpret data on two categorical and quantitative variables		
S-ID.4	Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	11-7
Making Inferences and Justifying Conclusions		S-IC
Understand and evaluate random processes underlying statistical experiments		
S-IC.1	Understand statistics as a process for making inferences to be made about population parameters based on a random sample from that population.	11-8
S-IC.2	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?*	11-9, Concept Byte (following 11-10)
Make inferences and justify conclusions from sample surveys, experiments, and observational studies		
S-IC.3	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	11-8
S-IC.4	Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	11-8, Concept Byte (following 11-8
S-IC.5	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	Concept Byte (following 11-10)
S-IC.6	Evaluate reports based on data.	11-6, 11-7, 11-8
Using Probability to Make Decisions		S-MD
Use probability to evaluate outcomes of decisions		
S-MD.6	Recognize the purposes of and differences among	11-5

Standards		Where to Find
	sample surveys, experiments, and observational studies; explain how randomization relates to each.	
S-MD.7	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	11-5

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		CCSS Standard	Revisions/Updates
Chapter 1 Expressions, Equations, and Inequalities			
1-1	Patterns and Expressions	Reviews A.SSE.3	
1-2	Properties of Real Numbers	Reviews R-NR.3	
1-3	Algebraic Expressions	A.SSE.1.b	
1-4	Solving Equations	A.CED.1, A.CED.4	
1-5	Solving Inequalities	A.CED.1	
1-6	Absolute Value Equations and Inequalities	A.SSE.1.b, A.CED.1	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.
Chapter 2 Functions, Equations, and Graphs			
2-1	Relations and Functions	Reviews F.IF.1, F.IF.2	
2-2	Direct Variation	A.CED.2	
2-3	Linear Functions and Slope-Intercept Form	A.CED.2	
2-4	More About Linear Equations	A.CED.2, F.IF.8, F.IF.9	Exercises will be revised to address F.IF.9. Students will compare properties of two functions each represented in a different way.
	Concept Byte: Piecewise Functions	F.IF.7.b	
2-5	Using Linear Models	A.CED.2	
2-6	Families of Functions	Prepares for F.BF.3	
2-7	Absolute Value Functions and Graphs	F.IF.7.b, F.BF.3	Exercises will be revised to address F.BF.3. Students will compare $k\,f(x)$ and $f(kx)$
2-8	Two-Variable Inequalities	A.CED.2	

	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.

Chapter 3 Linear Systems

3-1	Solving Systems Using Tables and Graphs	A.REI.11	Exercises will be added/revised to address A.REI.11. Students will solve one-variable equations by graphing a system for linear and for absolute value.
3-2	Solving Systems Algebraically	A.REI.5, A.REI.6	
3-3	Systems of Inequalities	A.REI.12	
3-4	Linear Programming	N.Q.1	
	Concept Byte: Linear Programming	A.REI.12	
	Concept Byte: Graphs in Three Dimensions	A.REI.6	
3-5	Systems With Three Variables	A.REI.6	
3-6	Solving Systems Using Matrices	A.REI.8	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.

Chapter 4 Quadratic Functions and Equations

4-1	Quadratic Functions and Transformations	A.CED.1, F.IF.4, F.BF.3	
4-2	Standard Form of a Quadratic Function	A.REI.11, A.CED.2, F.IF.4, F.IF.8	Exercises will be added/revised to address A.REI.11. Students will explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$ and use a quadratic function to solve a one-variable equation.

4-3	Modeling With Quadratic Functions	F.IF.5, F.IF.9	Exercises will be added/revised to address F.IF.9. Students will compare properties of two functions each represented in a different way.
	Concept Byte: Identifying Quadratic Data	F.IF.6	This feature will be revised to address F.IF.6. Students will find the rate of change for a quadratic over a specified interval.
4-4	Factoring Quadratic Expressions	A.SSE.1.a, A.SSE.1.b, A.SSE.2	Exercises will be added/revised to address A.SSE.1.a, A.SSE.1.b, and A.SSE.2. Students will interpret parts of an expression, such as terms, factors, and coefficients and will interpret complicated expressions by viewing one or more of their parts as a single entity. They will also use the structure of an expression to identify ways to rewrite it.
	Algebra Review: Square Roots and Radicals	Reviews N-RN.2	
4-5	Quadratic Equations	A.CED.1, APR.3	
	Concept Byte: Writing Equations From Roots	Reviews A.REI.4.b	
4-6	Completing the Square	Reviews A.REI.4.b	
4-7	The Quadratic Formula	Reviews A.REI.4.b	
4-8	Complex Numbers	N-CN.1, N-CN.2, N-CN.7, N-CN.8	Exercises will be added/revised to address N-CN.8. Students will factor the sum of squares.
	Concept Byte: Quadratic Inequalities	A.CED.1	
4-9	Quadratic Systems	A.REI.7	
	Concept Byte: Powers of Complex Numbers	Extends N-NC.2	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.

Chapter 5 Polynomials and Polynomial Functions

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5-1	Polynomial Functions	F.IF.4, F.IF.7.c, F.BF.3	This lesson will be revised to incorporate F.IF.4 and F.BF.3. Students will interpret key features of graphs – intervals for increasing and decreasing and determine if functions are even or odd.
5-2	Polynomials, Linear Factors, and Zeros	A.SSE.1.a, A.SSE.1.b, A.APR.1, F.IF.7.c	Exercises will be added/revised to address A.SSE.1.a, A.SSE.1.b, F.IF.7.c and A.APR.1. Students will interpret parts of an expression and complicated expressions, and will graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. They will also determine whether multiplication of polynomials is closed.
5-3	Solving Polynomial Equations	A.REI.11, A.SSE.2	This lesson will be revised to address A.REI.11 and A.SSE.2. Students will solve one-variable polynomial equations by graphing a system and will use the structure of an expression to identify ways to rewrite it.
5-4	Dividing Polynomials	A.APR.1, A.APR.2, A.APR.6	Exercises will be added/revised to address A.APR.1. Students will explain that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication.
5-5	Theorems About Roots of Polynomial Equations	A.APR.3	
	Concept Byte: Polynomial Identities	A.APR.4	This new feature replaces Solving Polynomial Inequalities and addresses A.APR.4. Students will prove polynomial identities and use them to describe numerical relationships.
5-6	The Fundamental Theorem of Algebra	N.CN.9, A.APR.3	Exercises will be added/revised to address N.CN.9. Students will show that the Fundamental Theorem of Algebra is true for quadratic functions.
	Concept Byte: Graphs of Polynomials	Prepares for A.APR.5	This new feature replaces Pascal's Triangle and addresses A.APR.3. Students will sketch graphs of polynomials using zeros.
5-7	The Binomial Theorem	A.APR.5	

5-8	Polynomial Models in the Real World	F.IF.5	
5-9	Transforming Polynomial Functions	F.IF.7.c, F.IF.8, F.IF.9, F.BF.3	Exercises will be added/revised to address F.IF.9. Students will compare two different polynomial functions represented in different ways.
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review		
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.
Chapter 6 Radical Functions and Rational Exponents			
	Algebra Review: Properties of Exponents	Reviews N-RN.1	
6-1	Roots and Radical Expressions	A.SSE.2	
6-2	Multiplying and Dividing Radical Expressions	A.SSE.2	
6-3	Binomial Radical Expressions	A.SSE.2	
6-4	Rational Exponents	N.RN.1, N.RN.2	
6-5	Solving Square Root and Other Radical Equations	A.REI.2	
6-6	Function Operations	F.BF.1.b	
6-7	Inverse Relations and Functions	F.BF.4.a	
	Concept Byte: Graphing Inverses	F.BF.4.a	
6-8	Graphing Radical Functions	F.IF.7.b, F.IF.8	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review		
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.
Chapter 7 Exponential and Logarithmic Functions			
7-1	Exploring Exponential Models	Prepares for F.IF.7.e	

7-2	Properties of Exponential Functions	A.CED.2, F.IF.7.e, F.IF.8, F.BF.1.b	Exercises will be added/revised to address F.BF.1.b. Students will will combine standard function types using arithmetic operations.
7-3	Logarithmic Functions as Inverses	A.SSE.1a, A.SSE.1.b, F.IF.7.e, F.IF.8, F.IF.9, F.BF.4.a	Exercises will be added/revised to more fully address F.IF.9, A.SSE.1a, and A.SSE.1.b. Students will compare two different logarithmic functions represented in different ways; they will interpret parts of an expression and complicated expressions.
	Concept Byte: Fitting Curves to Data	F.IF.4	
7-4	Properties of Logarithms	Prepares for F.LE.4	
7-5	Exponential and Logarithmic Equations	A.REI.11, F.LE.4	
	Concept Byte: Using Logarithms for Exponential Models	F.IF.7.e	
7-6	Natural Logarithms	F.LE.4	
	Concept Byte: Exponential and Logarithmic Inequalities	A.CED.1, A.CED.3	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review		
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.
Chapter 8 Rational Functions			
8-1	Inverse Variation	A.CED.2	
	Concept Byte: Graphing Rational Functions	F.IF.7.b	
8-2	The Reciprocal Function Family	A.CED.2, F.IF.8, F.BF.3	
8-3	Rational Functions and Their Graphs	A.CED.2, F.BF.1.b, F.BF.3	Exercises will be added/revised to more fully address F.BF.1.b. Students will combine standard function types using arithmetic operations.
	Concept Byte: Oblique Asymptotes	Extends A.CED.2	

8-4	Rational Expressions	A.SSE.1.a, A.SSE.1.b, A.SSE.2	Exercises will be added/revised to more fully address A.SSE.1.a, A.SSE.1.b, and A.APR.7. Students will interpret parts of an expression and complicated expressions; they will determine whether non-zero rational expressions form a closed system analogous to rational numbers.
8-5	Adding and Subtracting Rational Expressions	A.APR.7	Exercises will be added/revised to more fully address A.APR.7. Students will determine whether non-zero rational expressions form a closed system analogous to rational numbers.
8-6	Solving Rational Equations	A.CED.1, A.REI.2, A.REI.11	
	Concept Byte: Systems with Rational Equations	Extends A.REI.11	
	Concept Byte: Rational Inequalities	A.CED.1	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review		
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.
Chapter 9 Sequences and Series			
9-1	Mathematical Patterns	Prepares for A.SSE.4	
9-2	Arithmetic Sequences	F.IF.3	
	Concept Byte: The Fibonacci Sequence	F.IF.3	
9-3	Geometric Sequences	Prepares for A.SSE.4	
9-4	Arithmetic Series	Extends F.IF.3	
	Concept Byte: Geometry and Infinite Series	A.SSE.4	
9-5	Geometric Series	A.SSE.4	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.

	Chapter Review		
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.

Chapter 10 Quadratic Relations and Conic Sections

10-1	Exploring Conic Sections	Prepares for G.GPE.1, G.GPE.2, G.GPE.3	
	Concept Byte: Graphing Conic Section	Prepares for G.GPE.1, G.GPE.2, G.GPE.3	
10-2	Parabolas	G.GPE.2	
10-3	Circles	G.GPE.1	
10-4	Ellipses	G.GPE.3	
10-5	Hyperbolas	G.GPE.3	
10-6	Translating Conic Sections	G.GPE.1, G.GPE.2	
	Solving Quadratic Systems	Extends G.GPE.1, G.GPE.2	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review		
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.

Chapter 11 Probability and Statistics

11-1	Permutations and Combinations	S.CP.9	
11-2	Probability	S.CP.1, S.CP.9	
11-3	Probability Multiple Events	S.CP.2, S.CP.5, S.CP.7	
	Concept Byte: Probability Distributions	S.CP.4	
11-4	Conditional Probability	S.CP.3, S.CP.4, S.CP.5, S.CP.6, S.CP.8	

11-5	Probability Models	S.MD.6, S.MD.7	This new lesson addresses S.MD.6, and S.MD.7. Students will use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator) and will analyze decisions and strategies using probability concepts.
11-6	Analyzing Data (renumbered from 11-5)	S.IC.6	
11-7	Standard Deviation (renumbered from 11-6)	S.ID.4, S.IC.6	This lesson will be revised to address S.ID.4. Students will also recognize that there are data sets for which using standard deviation is not appropriate.
11-8	Samples and Surveys (renumbered from 11-7)	S.IC.1, S.IC.3, S.IC.4, S.IC.6	This lesson will be revised to more fully address S.IC.1 Students will use statistics based on a random sample from a population to make inferences about population parameters.
	Concept Byte: Population Mean	S.IC.4	This new feature addresses S.IC.4. Students will estimate a population mean or proportional
11-9	Binomial Distributions (renumbered from 11-8)	S.IC.2	
	Concept Byte: Approximating a Binomial Distribution	Extends S.ID.2	
11-10	Normal Distributions (renumbered from 11-9)	Extends S.ID.3	
	Concept Byte: Randomized Experiments	S.IC.2, S.IC.5	This new feature addresses S.IC.5. Students will use data from a randomized experiment to compare two treatments.
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review		
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.

Chapter 12 Matrices

| 12-1 | Adding and Subtracting Matrices | N.VM.8, N.VM.10 | |

	Concept Byte: Working With Matrices	N.VM.6	
12-2	Matrix Multiplication	N.VM.6, N.VM.7, N.VM.8, N.VM.9	
	Concept Byte: Networks	N.VM.6	
12-3	Determinants and Inverses	N.VM.10, N.VM.12	
12-4	Inverse Matrices and Systems	N.VM.8	
12-5	Geometric Transformations	N.VM.8	
12-6	Vectors	N.VM.1, N.VM.2, N.VM.3, N.VM.4.a, N.VM.4.b, N.VM.4.c, N.VM.5, N.VM.5.a, N.VM.5.b, N.VM.5.c, N.VM.11, N.VM.12	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review		
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.

Chapter 13 Periodic Functions and Trigonometry

13-1	Exploring Periodic Data	F.IF.4, Prepares for F.TF.5	
	Geometry Review: Special Right Triangles	Reviews G.SRT.6	
13-2	Angles and the Unit Circle	F.TF.2	
	Activity Lab: Measuring Radians	Prepares for F.TF.1	
13-3	Radian Measure	F.TF.1	
13-4	The Sine Function	F.IF.7.e, F.TF.2, F.TF.5	
	Concept Byte: Graphing Trigonometric Functions	Prepares for F.TF.5	
13-5	The Cosine Function	F.IF.7.e, F.TF.2, F.TF.5	
13-6	The Tangent Function	F.IF.7.e, F.TF.2, F.TF.5	

13-7	Translating Sine and Cosine Functions	F.IF.7.e, F.TF.5, F.TF.5	This lesson will be revised to address F.IF.7.e. Students will define midline in graphs of trigonometric functions.
13-8	Reciprocal Trigonometric Functions	F.IF.7.e	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	Chapter Review		
	Chapter Review, Chapter Test, Cumulative Test Prep		The cumulative test prep will be revised as needed to more fully align to CCSS.

Chapter 14 Periodic Functions and Trigonometry

14-1	Trigonometric Identities	F.TF.8	
14-2	Solving Trigonometric Equations Using Inverses	F.TF.6, F.TF.7	
14-3	Right Triangles and Trigonometric Ratios	G.SRT.6, G.SRT.8	
14-4	Area and the Law of Sines	G.SRT.9, G.SRT.10, G.SRT.11	
	Concept Byte: The Ambiguous Case	G.SRT.11	
14-5	The Law of Cosines	G.SRT.10, G.SRT.11	
14-6	Angle Identities	Extends F.TF.9	
14-7	Double-Angle and Half-Angle Identities	Extends F.TF.9	
	Pull It All Together		This feature will be revised to more fully integrate the Standards of Mathematical Practices.
	End of Course Test		The End-of-Course Test will be revised as needed to more fully align to CCSS.
	Index		The index will be updated to reflect new and revised content.
	Selected Answers		The selected answers will be updated to reflect new and revised content.